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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,047	07/31/2001	Ramesh Nagarajan	14-11	4255

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CAPITOL PATENT & TRADEMARK LAW FIRM, PLLC
ATTN: JOHN CURTIN
P.O. BOX 1995
VIENNA, VA 22183

EXAMINER	
CURS, NATHAN M	
ART UNIT	**PAPER NUMBER**
2613	

DATE MAILED: 11/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/919,047	NAGARAJAN ET AL.	
	Examiner	Art Unit	
	Nathan Curs	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 July 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1, 3-7, 9-15 and 17 are rejected under 35 U.S.C. 102(a) as being anticipated by Wei et al. ("Just-in-time signaling for WDM optical burst switching networks"; Wei et al.; Journal of Lightwave Technology, Vol. 18, Issue 12, Dec 2000, Pages 2019-2037).

Regarding claim 1, Wei et al. disclose a method for use in a node of a network during a connection setup between a source node and a destination node, the method comprising the steps of: initiating a cross-connect with an adjacent node; at substantially the same time as the cross-connect is initiated, sending a connection setup message to a next node before the cross-connect is completed (fig. 4 and pages 2022-2024, section "D. Just-In-Time Optical Burst Switching" and fig. 5 and page 2028, col. 2, line 15 to page 2029, col. 1, line 28).

Regarding claim 3, Wei et al. disclose the method according to claim 1, wherein the network is an optical transport network (page 2019, Abstract).

Regarding claim 4, Wei et al. disclose the method according to claim 3, wherein the cross-connect is selected from the group consisting of an electrical-based cross-connect and a transparent wavelength-based optical cross-connect (page 2021, col. 1, lines 26-48).

Regarding claim 5, Wei et al. disclose the method according to claim 1, wherein the connection setup is a wavelength-based connection setup (page 2021, col. 1, lines 26-48).

Regarding claim 6, Wei et al. disclose a method for use in a node of a network during a connection setup between a source node and a destination node, the connection setup comprising a forward pass of signaling messages from the source node to the destination node and a reverse pass of signaling messages from the destination node to the source node, the method comprising the steps of: initiating a cross-connect with an adjacent node on the forward pass of the connection setup; at substantially the same time as the cross-connect is initiated, sending a connection setup message to a next node; and checking if the cross-connect was successful on the reverse pass of the connection setup (fig. 4 and pages 2022-2024, section "D. Just-In-Time Optical Burst Switching" and fig. 5 and page 2028, col. 2, line 15 to page 2029, col. 1, line 28, where the SETUP signal reserves a wavelength and issues a command to the cross-connect fabric controller on the forward pass and the CONNECT signal, sent on the reverse pass, confirms that the cross-connect was successful).

Regarding claim 7, Wei et al. disclose the method according to claim 6, wherein the forward pass and reverse pass of signaling messages occurs out-of-band (page 2019, col. 2, lines 2-8).

Regarding claim 9, Wei et al. disclose a method for use in a node of a network during a connection setup between a source node and a destination node, the method comprising the steps of: sending a connection setup message to a next node at substantially the same time as a cross-connect is initiated; and performing the cross-connect with a downstream node prior to receipt of a signaling message related to a status of at least one cross-connect operation performed at another downstream node (fig. 4 and pages 2022-2024, section "D. Just-In-Time Optical Burst Switching" and fig. 5 and page 2028, col. 2, line 15 to page 2029, col. 1, line 28).

Regarding claim 10, Wei et al. disclose a method for use in a node of a network during a connection setup between a source node and a destination node, the method comprising the

steps of: sending a connection setup message to a next node from an upstream node at substantially the same time as a cross-connect is initiated; and responsive to the received connection setup message, executing a cross-connect with a downstream node (fig. 4 and pages 2022-2024, section "D. Just-In-Time Optical Burst Switching" and fig. 5 and page 2028, col. 2, line 15 to page 2029, col. 1, line 28).

Regarding claim 11, Wei et al. disclose apparatus comprising: a communications interface for providing signaling to a downstream node and for receiving signaling from an upstream node; and a processor, responsive to receipt of a connection setup message sent from the upstream node at substantially the same time as a cross-connect is initiated (fig. 4 and pages 2022-2024, section "D. Just-In-Time Optical Burst Switching" and fig. 5 and page 2028, col. 2, line 15 to page 2029, col. 1, line 28, where the JIT signaling agent is a processor)

Regarding claim 12, Wei et al. disclose the apparatus according to claim 11, wherein the upstream node and the downstream node are in an optical transport network (page 2019, Abstract).

Regarding claim 13, Wei et al. disclose the apparatus according to claim 12, wherein the cross-connect is selected from the group consisting of an electrical-based cross-connect and a transparent wavelength-based optical cross-connect (page 2021, col. 1, lines 26-48).

Regarding claim 14, Wei et al. disclose the apparatus according to claim 11, wherein the connection setup is a wavelength-based connection setup (page 2021, col. 1, lines 26-48).

Regarding claim 15, Wei et al. disclose the apparatus according to claim 11, wherein the signaling occurs out-of-band (page 2019, col. 2, lines 2-8).

Regarding claim 17, Wei et al. disclose apparatus comprising: a communications interface for receiving signaling sent from an upstream node at substantially the same time as a cross-connect in initiated, at the upstream node on a forward pass of a connection setup and

receiving signaling from a downstream node on a reverse pass of the connection setup; and a processor for initiating a cross-connect with the downstream node on the forward pass, and for checking if the cross-connect was successful on the reverse pass (page 2028, col. 2, line 15 to page 2029, col. 1, line 28), where the JIT signaling agent is a processor, and where the SETUP signal initiates a cross-connect on the forward pass and the CONNECT signal, sent on the reverse pass, confirms the cross-connect was successful.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wei et al. ("Just-in-time signaling for WDM optical burst switching networks"; Wei et al.; Journal of Lightwave Technology, Vol. 18, Issue 12, Dec 2000, Pages 2019-2037) in view of Qiao et al. ("Just-Enough-Time (JET): a high speed protocol for bursty traffic in optical networks"; Qiao et al.; Technologies for a Global Information Infrastructure, 1997 Digest of the IEEE/LEOS Summer Topical Meetings, 11-15 Aug. 1997, Pages 26-27).

Regarding claims 8 and 16, Wei et al. disclose the method and apparatus according to claims 6 and 16, respectively, and disclose forward pass and reverse pass of signaling (page 2028, col. 2, line 15 to page 2029, col. 1, line 28). Wei et al. also discuss in-band signaling (page 2021, col. 2, lines 11-17 and page 2022, col. 1, lines 9-21), but do not elaborate on in-band signaling in their example of JIT signaling. Qiao et al. disclose an implementation of JIT

signaling using in-band signaling (page 26, section 2, where the Qiao et al. system is not a WDM system and thus the signaling is inherently in-band, i.e. in the same wavelength). It would have been obvious to one of ordinary skill in the art at the time of the invention that the JIT system of Wei et al. could alternately function using in-band signaling, as taught by Qiao et al., in order to provide packet-switching-like JIT signaling, with the traffic burst durations and optical buffers optimally matched to avoid dropped bursts, to provide the advantage of the short setup time achievable when the control information travels on the same wavelength as the data (i.e. the signaling for one path not requiring setup time for multiple wavelengths).

Response to Arguments

5. Applicant's arguments filed 25 August 2006 have been fully considered but they are not persuasive.

Regarding the rejections under 35 U.S.C. § 102(a), the applicant states that "Wei appears to send a SETUP message after a cross-connect is initiated (e.g. after a time period, t_p)". However, this statement is an inaccurate interpretation of Wei. Cross-connect initiation in Wei is actually associated with period t_c, not period t_p, as follows. In Wei fig. 4, the time axis flows from top to bottom of the figure and the space/distance axis flows from left to right. In this figure, the SETUP message starts propagating toward a next node after period t_p, at approximately the same time that period t_c starts. On page 2023, col. 2, Wei states that "Cross-connect setup is performed in parallel with the next hop propagation", and on page 2025, col. 1, Wei further defines t_p as "protocol messaging processing time" and t_c as "crossconnect cut-through switching and stabilization time". Since cross-connect setup is disclosed as happening in parallel with the next hop propagation, and next hop propagation is shown as happening during period t_c, the conclusion is that Wei's cross-connect setup happens during period t_c.

Therefore, the start of the cross-connect setup, i.e. cross-connect "initiation", corresponds to the start of period t_c, which is approximately the same time that the SETUP message starts propagating to the next node.

Regarding the rejections under § 103(a), the applicant first argues that Wei appears to be directed solely at out-of-band signaling. While Wei's main embodiment is directed at out-of-band signaling (as is all of the applicant's disclosure except for the last sentence), Wei as a whole reference is not "solely" directed at out-of-band signaling. Wei addresses in-band signaling in general terms (page 2021, col. 2, lines 11-17 and page 2022, col. 1, lines 9-21). The applicant expressed confusion as to if this means that the 103 rejections rely on Wei's disclosure of in-band signaling. The 103 rejections rely partially on Wei's disclosure of in-band signaling in that Wei's disclosure establishes a context for in-band signaling. Specifically, Wei states that for in-band signaling, control information travels along with the data. This is relevant when considering the combination of Wei and Qiao, since the applicant next states that the applicant does not find any mention of in-band signaling in the excerpt of Qiao. Although Qiao does not use the exact phrase "in-band signaling", Qiao teaches control information traveling along with the data, analogous to what Wei calls "in-band signaling".

The applicant further states "Qiao appears to disclose a high speed protocol called 'JET' that is based on a 'TAG' protocol used in circuit switching. Circuit switching inherently uses out-of-band signaling, not in-band". However, circuit switching does not inherently use out-of-band signaling. But even assuming for the sake argument that out-of-band signaling is common in circuit switching, that would not mean that out-of-band signaling apples to TAG or JET anyway. What Qiao says about TAG is that TAG can reduce pre-transmission delay associated with "end-to-end reservations (e.g. in circuit switching)". Qiao saying that TAG's delay reduction can be applicable in circuit switching is not the same as saying TAG is equivalent to circuit switching

or has the features of circuit switching. Further, Qiao says JET (based on TAG) is suitable for bursty traffic where the burst is neither long enough to warrant circuit switching nor short enough to fit in a packet, and then says that in TAG, "the data burst follows the control packet", and also discloses this kind of feature in JET. There is no basis for attributing any out-of-band signaling from circuit-switching to TAG, thus there is no basis for attributing any out-of-band signaling from circuit-switching to JET.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

7. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (571) 272-3028. The examiner can normally be reached on M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (571) 272-3022. The fax phone number for the

organization where this application or proceeding is assigned is (571) 273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (800) 786-9199.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pairdirect.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600